

REMARKS

By the present amendment, independent claim 1 has been amended to further clarify the concepts of the present invention. More particularly, claim 1 has been amended to recite a "multi-step" emulsion polymerization. Support for the amendment to claim 1 may be found in the disclosure from the last line of page seven to line 2 of page eight as well as in all of the Examples of the subject specification. Entry of these amendments is respectfully requested.

In the most-recent Office Action, claims 1, 3 and 6 were rejected under 35 USC § 102(b) as being anticipated, or in the alternative under 35 USC § 103(a) as being unpatentable, over the newly applied patents to Kojima et al or Hammer. In making this rejection, it was asserted that the cited patents each teach a composition which is obtained from polymerizing (1) a glycidyl methacrylate in conjunction with (2) di-t-butyl peroxide or t-butyl peroxy-isobutyrate. In so doing, it apparently was asserted that (1) is the same as the (meth)acrylate having an oxygen atom in addition to an ester bond as recited in claim 1 and (2) is the same as the polymerization initiator as recited in claim 1. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

Before discussing the rejection in detail, a brief review of the presently claimed

invention may be quite instructive. The presently claimed invention relates to a processing aid for a thermoplastic resin, the processing aid being obtained by multi-step emulsion-polymerizing of (meth)acrylate, another alkyl acrylate and another vinyl monomer copolymerizable therewith. The obtained processing aid has a particle structure as it is obtained by emulsion-polymerization. Also the processing aid obtained by multi-step emulsion polymerizing, as described in amended Claim 1, has a core-shell structure. The processing aid of the present invention is obtained by multi-step emulsion-polymerizing of the above monomers and provides excellent processability, in particular, properties such as a peeling property from a metal surface at a high temperature. It is submitted that such a processing aid is not taught or suggested by the cited patents to Kojima et al and Hammer, whether taken singly or in combination.

The Kojima et al patent relates generally to an adhesive resin. Example 1 of the patent, as mentioned in the Action, describes the use of ethylene (at least 95 wt %) and glycidyl methacrylate, a small amount of maleic anhydride, di-tertiary-butyl peroxide as a polymerization initiator, but does not describe using another alkyl acrylate. In addition, the polymerization is carried out under a high temperature and a high pressure (Examples, 170°C and 1700 kg/cm²) without using a solvent, and is different from multi-step emulsion-polymerization as used for the processing aid in accordance with the present invention. Consequently, the resin obtained by the Kojima et al patent does not have the particle and core-shell structure as does the subject processing aid. Therefore, the processing aid of

the present invention is distinctly different from the adhesive resin disclosed in the Kojima et al patent in this important respect.

The Hammer patent teaches a blend resin which provides toughness and adhesion to a thermosetting resin. In the Examples of the Hammer patent, a large amount (60%) of ethylene, which is not used in the present invention, is used and the polymerization is carried out under a high temperature and a high pressure (153-182°C and 1400-1830 atm in the Examples). Thus, the Hammer patent does not disclose a multi-step emulsion-polymerization as is used in obtaining the processing aid according to the present invention. Therefore, the processing aid of the presently claimed invention significantly differs from the blend resin described in the Hammer patent in this important respect.

In summary, as described above, the Kojima et al and Hammer patents do not teach or suggest a processing aid prepared by multi-step emulsion-polymerization which produces particles having a core-shell structure. Therefore, the processing aid of the present invention which has excellent processability and a peeling property from a metal surface at a high temperature cannot be obtained from any combination of the Kojima et al and Hammer patents, which do not teach or suggest a processing aid prepared by multi-step emulsion-polymerization.

For the reasons stated above, withdrawal of the rejections under 35 U.S.C. § 102(b)

and 35 U.S.C. § 103(a) and allowance of claims 1, 3 and 6 over the cited patents are respectfully requested.

Claim 9 was rejected under 35 USC § 103(a) as being unpatentable over the newly cited patent to Kojima et al in view of the previously cited patent to Tugukuni et al. In making this rejection, it was asserted that the cited Kojima et al patent teaches a composition which is formed from components which meet the recitations of claim 9 in the presence of a chain transfer agent. It was acknowledged that the Kojima et al patent does not teach the mercaptan chain transfer agent as recited in claim 9, but it was asserted that the Tugukuni et al patent teaches the equivalence of t-butyl peroxides and mercaptans having an alkyl ester group as chain transfer agents. Reconsideration of this rejection in view of the above claim amendments and the following comments is respectfully requested.

Again, before discussing the subject rejection in detail, a brief review of the presently claimed invention may be quite instructive. In the invention as defined by independent claim 9, a composition having an excellent roll peeling property can be obtained by using a mercaptan containing an alkyl ester group having C₄₋₂₀ alkyl group as a chain transfer agent. In this regard, attention is directed to the composition of Example 8, which satisfies claim 9, where the roll peeling property is considerably improved to a value of 10. In distinct contrast, the compositions of Comparative Examples 8 and 9,

where tert-dodecyl mercaptan and n-dodecyl mercaptan, which do not satisfy claim 9, are used, the roll peeling properties only have a value of 5. From this comparison, it is evident that the compositions of the presently claimed invention have an excellent roll peeling property. It is submitted that such a processing aid is not taught or suggested by the cited patents to Kojima et al and Tugukuni et al, whether taken singly or in combination.

As described previously, the Kojima et al patent only relates to the adhesive property of the resin and differs from the present invention in view of the composition of the resin and the purpose of using. Therefore, the processing aid of the present invention cannot be obtained by applying the Kojima et al patent, which considers only the adhesive property, as was acknowledged in the Action.

It is submitted that the Tugukuni et al patent does not supply these teaching deficiencies. The chain transfer agent used in Example 8 of the Tugukuni et al patent, dodecyl mercaptan, and relied upon in the Action, does not correspond to a mercaptan having an alkyl ester group as is clearly recited in claim 9. Dodecyl mercaptan does not have an alkyl ester group. Claim 9 recites "a mercaptan having an alkyl ester group with C₄₋₂₀ alkyl group as a chain transfer agent.

In summary, the processing aid of the presently claimed invention has excellent processability and, in particular, has excellent properties such as a peeling from a metal

surface at a high temperature.

For the reasons stated above, withdrawal of the rejection under 35 U.S.C. § 103(a) and allowance of claim 9 over the cited patents are respectfully requested.

In view of the foregoing, it is submitted that the subject application is now in condition for allowance and early notice to that effect is earnestly solicited.

In the event this paper is not timely filed, the undersigned hereby petitions for an appropriate extension of time. The fee for this extension may be charged to Deposit Account No. 01-2340, along with any other additional fees which may be required with respect to this paper.

Respectfully submitted,

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